

INTERNATIONAL DEVELOPMENT ASSOCIATION  
INTERNATIONAL MONETARY FUND

NIGER

**Joint Bank-Fund Debt Sustainability Analysis**

Prepared by the staffs of the International Development Association  
and the International Monetary Fund

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*Niger remains at moderate risk of debt distress, although debt indicators have improved compared with the 2007 DSA. The improvement is on account of projected increases in oil and uranium exports predominantly financed through foreign direct investment (FDI).*

**I. BACKGROUND**

1. This joint Bank-Fund debt sustainability analysis evaluates both the external and the total public debt of Niger based on end-2007 data, using standard debt dynamics templates for low-income countries.<sup>1</sup>
2. **Niger's debt ratios have been significantly reduced by debt relief, most recently under the MDRI.** Niger reached the HIPC Initiative completion point in April 2004 and in 2006 benefited from MDRI assistance from the, IDA, IMF and the African Development Fund. Nominal external debt has thus fallen from over 90 percent of GDP at end-2000 to about 15 percent of GDP at end-2007. By end-2007, debt to the IDA, AfDB and the IMF accounted for 5 percent, 27 percent and 2 percent of external debt, respectively, while the remainder was constituted by borrowing from other multilateral lenders.

**II. UNDERLYING DSA ASSUMPTIONS**

3. The result of the current exercise differs from that of the 2007 DSA mainly because of an expected acceleration of FDI and exports in 2008-15 resulting from the launch of an oil production project as well as significant developments in the uranium sector. Box 1 describes the two largest oil and uranium projects in Niger, along with some smaller investments, while Box 2 presents in detail the main macroeconomic assumptions used for the baseline debt

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<sup>1</sup> The DSA was produced jointly by staffs of the World Bank and the IMF.

burden ratio calculations. The projected faster export growth in real terms (9 percent per year in 2008–16) represents a break from the past (3.4 percent per year in 1998-2007) when mining exports were stagnant.

### **Box 1: Large Investment Projects**

Two very large investments and several smaller ones are planned over the next five years which will generate significant government revenues: (i) the exploitation of petroleum in the Agadem field and construction of a refinery; (ii) the development of the Imourarem uranium mine; and (iii) expansion of the existing uranium mines and development of the Teguida mine. These play an important role in improving the sustainability of Niger's debt.

**Agadem:** A production-sharing contract with China National Oil and Gas Exploration and Development Corporation (CNODC) was approved in June 2008. The project has three components: the development of the Agadem oil field to extract reserves estimated at 324 million barrels, the construction of a mini-refinery in Zinder with a capacity of 20,000 barrels per day, and a 580 km pipeline linking the Agadem field to the refinery. The estimated cost is about US\$1.3 billion. Production is scheduled to begin in early 2012. Since the capacity of the refinery exceeds the local consumption, much of the production will be exported. The operator will also conduct further exploration and if sufficient new discoveries are made, exports of crude through a new pipeline are envisaged. An initial payment of US\$300 million has already been made to the Government, and construction has started on the refinery.

**Imourarem:** The development of this new mine would involve an investment of about €1 billion over the next five years and increase uranium production by about 5,000 tons by 2015, almost double current national output of 2,900 tons. Formal negotiations have not yet reached closure, although they are at an advanced stage.

**Smaller uranium projects:** The largest existing uranium mine, Somair, is in the process of expanding its output by roughly 35 percent. The other main uranium mine, Cominak, is investing in improved processing technology to raise its yield. A new mine at Teguida is being developed with Chinese investment. These investments are already under way and together they will result in some short term improvement in uranium output and a 40 percent increase in national output by 2012.

In total the above investments are projected to increase uranium production to 9,600 tons by 2015, more than triple the current level. While the spot price of uranium has fallen with the recent global economic slowdown, it remains well above the average for the last 20 years and similar to the price set in current contracts in Niger. The long-term prospects for uranium remain strong given the renewed interest in nuclear energy. There is no evidence to date that the financial crisis is affecting the above investments, but some delays are not out of the question given the current global economic slowdown.

### III. EXTERNAL DSA

4. **In the baseline scenario, all external debt ratios remain below their policy-dependent indicative thresholds throughout the projection period (2008-28).** The present value (NPV) of debt-to-GDP ratio rises gradually and stabilizes below 25 percent by 2028, and the NPV of debt-to-exports ratio levels off at about 95 percent (Table 1a and Figure 1). The gradual rise in these indicators results from Niger's high financing requirements, critical for promoting growth and achieving the Millennium Development Goals: it is assumed that one third of total project financing is in the form of concessional loans and the rest in grants.

#### Policy-Based Thresholds and External Debt Burden Indicators

	Thresholds <sup>1/</sup>	Niger: Baseline Scenario Ratios		
		2007	2008-28 <sup>2/</sup>	Peak
NPV of external debt in percent of:				
GDP	40	10.6	16.4	22.0
Exports	150	55.4	64.1	94.5
Revenue	250	69.8	108.8	152.0
External debt service in percent of:				
Exports	20	2.8	2.8	4.3
Revenue	30	3.5	4.7	6.9

<sup>1/</sup> Policy-dependent thresholds as used in the joint WB- IMF LIC DSA framework for a medium policy performance. Niger received an average rating of 3.29 in 2005-2007 in the World Bank's Country Policy and Institutional Assessment (CPIA), which qualifies it as a medium policy performer..

<sup>2/</sup> Simple average.

5. **Given the uncertainties in the international environment, there are significant risks to the oil and uranium projects due to their externally-financed nature.** The risk is further increased by the downward trend in oil prices and the fact that the Imourarem project agreement remains to be finalized.

6. **Sensitivity tests show that although Niger's external debt burden would worsen if there were plausible adverse macroeconomic shocks, the ratios would remain below their threshold levels in most scenarios.** If key variables remain at the historical average of the previous 10 years (scenario A1), the NPV of debt-to-GDP and debt-to-exports ratios would rise to 14 percent and 59 percent respectively by 2028, remaining below the baseline (see Table 2a). This lower debt profile in the historical scenario reflects less borrowing and smaller current account deficits than are assumed going forward. Two other scenarios—a

temporary but substantial reduction in export growth (scenario B2), and a sizeable deterioration of the terms for new borrowing (scenario A2)<sup>2</sup>—would significantly worsen Niger’s NPV of debt to exports ratio, but still not violate the thresholds. Thresholds are however, breached under two stress tests (scenarios B4 and B5).<sup>3</sup>

7. **The external debt situation of the country is also resilient to alternative scenarios particularly relevant to the case of Niger.** In view of the recent lowering of the minimum grant element for Niger to 35 percent, and the significance of the expected increase in oil exports, alternative scenarios consider an average grant element of 35 percent for future borrowing (scenario A3), a decline in oil prices to US\$ 50 per barrel by 2012 (scenario A4), the cancellation of new oil and uranium projects (scenario A5), and a low growth scenario (A6 - GDP growth of 3.5 percent throughout the projection period). Under all these scenarios, the debt indicators remain below the threshold levels.

#### IV. PUBLIC DSA

8. **As was the case in the 2007 DSA, consideration of total public debt, including domestic debt, does not significantly alter the assessment.** Domestic debt stood at approximately 11 percent of GDP (43 percent of total public debt) at end-2007, but is projected to fall under the baseline scenario, to about 4 percent of GDP by 2013 and continuing to decline thereafter (Table 1b). This pattern is explained by relatively low primary fiscal deficits, averaging 1.3 percent of GDP in the projection period. The average interest rate on domestic debt is very low (1.4 percent) because the bulk of the debt is constituted by non-interest bearing arrears, which are projected to be fully repaid by 2015.

9. **A significant proportion of domestic debt as of end-2007 is accounted for by domestic arrears.** The baseline analysis therefore takes into account the ongoing implementation of a domestic arrears reduction plan, which reduces domestic debt to 15 percent of total public debt by 2013, and nearly eliminates it by 2017. Total public sector debt (NPV) would remain stable at about 19 percent of GDP up to 2018 and then gradually increase, driven solely by new external debt. Two sensitivity tests generate a significant rise of public debt (Table 2b). The first is an alternative scenario that incorporates a slightly and permanently lower GDP growth (scenario A3), and the second is a bound test (scenario B1)

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<sup>2</sup> Under scenario A2, interest costs are 2 percentage points above the baseline.

<sup>3</sup> These stress tests reflect somewhat unlikely scenarios. Scenario B4 assumes that in 2009 and 2010 all non-debt creating flows (including foreign direct investment) are significantly below their historical levels, while other current account components (including imports) are kept as in the baseline scenario. Under these assumptions, the current account deficit widens substantially because of high imports related to oil and uranium investments with no matching FDI flows. However, this scenario is unlikely because the investment related imports will occur only if foreign investment flows into the country to finance the oil and uranium projects.

of strong, temporary lower growth in 2009-2010<sup>4</sup>. In the first case (A3), total public debt (NPV) reaches about 43 percent of GDP and about 200 percent of forecast revenue by the end of the projection period (Figure 2). In the second case (B1), the NPV of total public debt grows up to 35 percent of GDP and 169 percent of revenue by 2028.

## V. CONCLUSION

10. **With the expected increase in oil and uranium exports due to continuing investments financed by FDI, Niger's debt outlook has improved from the previous DSA. However, the debt situation remains vulnerable to macroeconomic shocks, particularly in an uncertain international environment. For this reason, Niger remains at a moderate risk of external debt distress.** Despite the recent improvement in the debt sustainability outlook, the authorities should continue to pursue prudent debt policies, combining maximum concessionality in new borrowing with sound macroeconomic management and export diversification. Policies should aim at boosting growth and diversifying the productive base of the economy, particularly exports, while continuing to access grants and highly concessional loans.

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<sup>4</sup> Scenario A3 assumes that GDP growth is at baseline minus one standard deviation divided by the length of the projection period. Scenario B1 assumes real GDP growth at the historical average minus one standard deviation in 2009-10.

### Box 2. Baseline scenario assumptions

The baseline macroeconomic scenario for 2008–28 hinges on the following assumptions:

- Real GDP growth is expected to rise from its historical average (1998-2007) of 4.8 percent to an average of 5.2 percent in 2008–13, fostered mainly by increased investment in and production of oil and uranium. In 2014-28, with oil and uranium production stabilizing, annual GDP growth is expected to moderate to about 4.9 percent. This level is similar to the historical average, although Niger's growth potential could rise considerably due to current investments in irrigation and infrastructure, as well as ongoing reforms to improve the investment climate.
- The investment rate is projected to be high in 2008-12, between 27 and 44 percent of GDP, largely as a result of planned oil and uranium-related investments. Investment would hold steady at around 23 percent of GDP in 2013-28, as mining-related investment declines.
- The GDP deflator is expected to rise by 2.5 percent after 2008. In 2012, the introduction of oil into Niger's GDP would create a one-year, purely statistical, increase in the calculated deflator.
- The revenue-to-GDP ratio is projected to remain around 15 percent in 2008-28, with a temporary increase in 2014-16 due to higher tax revenues from oil and uranium exports. Public expenditures would remain high, between 23 and 24 percent of GDP through the rest of the projection period, reflecting the authorities' efforts to increase social spending and promote growth.
- The evolution of total exports in the medium term will be largely determined by developments in oil and uranium exports resulting from investments to expand production and from higher prices. Between 2009 and 2011 investments to bring into production oil from the Agadem field would be equivalent to 30 percent of 2008 GDP. Its production could increase exports and reduce imports to narrow the current account deficit by 8 percent of GDP between 2011 and 2012, assuming currently projected prices by the IMF's World Economic Outlook. Investments related to uranium in 2008-2012 are projected at about 30 percent of 2008 GDP, leading to a tripling of current production by 2014 mainly because of the new Imourarem project. Uranium prices have increased by 50 percent from 2007 to 2008, and are conservatively projected to increase by 2 percent per year in the medium term, in line with projected world inflation.
- With the sharp increase in oil and uranium exports, overall export growth in constant prices is projected at about 9 percent per year in 2008-16, which compares to 3.4 percent in the last 10 years when mining exports were stationary. The stabilization of oil and uranium exports and a projected drop in gold production (expected to peak in 2010) would result in a significant slowdown of exports after 2015, to a growth rate in volume of about 2.5 percent per year in 2016-28.
- Oil and uranium-related activity will also boost other items of the current account because of increased imports of equipment and capital goods, higher repatriation of profits, and larger compensation to foreign employees. Hence, total imports in constant prices would grow about 8 percent on average during 2008-15, with the current account deficit-to-GDP ratio peaking in 2011. Afterwards, imports are projected to grow broadly in line with GDP growth, with the current account deficit as a share to GDP declining gradually.
- The average interest rate on new external borrowing is projected at 1.2 percent, assuming half of new external debt is contracted on IDA terms and half at an interest rate of about 2 percent. Project financing in the form of external grants and loans is projected to rise in line with nominal GDP, with grants being two thirds of the total. External budgetary financing will gradually fall as a share of GDP after reaching a peak in 2009, with grants also about two-thirds of the total.
- The domestic debt profile assumes a reduction of domestic arrears in 2007-13 and no domestic financing of the deficit after 2017. The average interest rate on the stock of debt is very low (1.4 percent) because arrears do not incur interest charges. The interest rate of new domestic financing up to 2017 is assumed at 4 percent.

**Box 2 (continued). Baseline scenario assumptions**

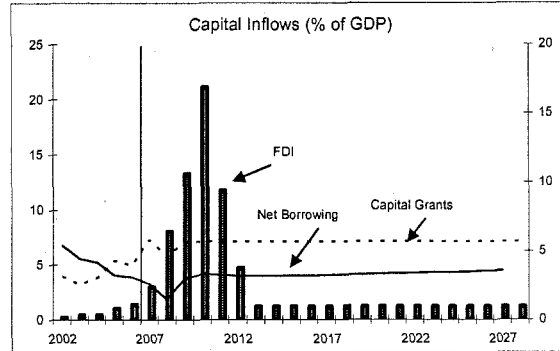
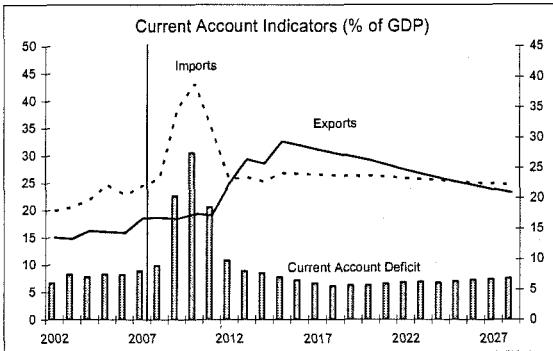
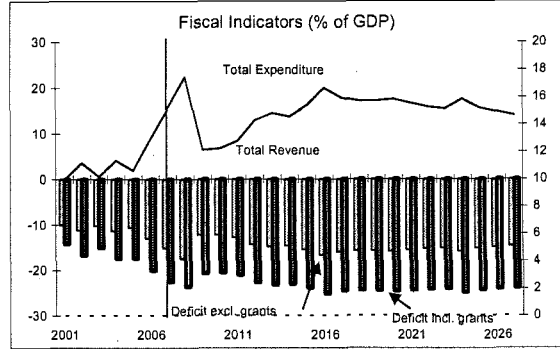
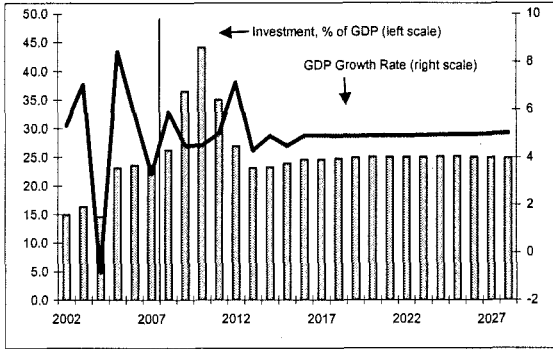


Table 1a.: External Debt Sustainability Framework, Baseline Scenario, 2005-2028 1/  
(In percent of GDP, unless otherwise indicated)

	Actual			Projections										2014-2028 Average		
	2005	2006	2007	Historical Average		Standard Deviation		2008	2009	2010	2011	2012	2013		2008-2013 Average	2018
<b>External debt (nominal) 1/</b>	54.3	15.0	15.1				15.2	17.0	18.8	20.6	20.4	21.9	21.9	28.4	37.1	37.1
o/w public and publicly guaranteed (PPG)	54.3	15.0	15.1				15.2	17.0	18.8	20.6	20.4	21.9	21.9	28.4	37.1	37.1
Change in external debt	-0.3	-39.3	0.1				0.2	1.8	1.8	1.8	-0.2	1.5	1.5	1.2	0.4	0.4
Identified net debt-creating flows	-0.4	2.7	3.8				1.1	10.5	10.2	9.5	7.5	6.4	6.4	4.0	5.0	5.0
Non-interest current account deficit	7.8	8.0	8.7	1.8	6.4		9.7	24.5	32.1	22.1	13.3	8.2	8.2	6.2	7.5	7.0
Deficit in balance of goods and services	13.4	12.7	12.3				13.7	30.8	35.1	25.6	12.4	5.6	5.6	5.4	9.0	9.0
Exports	17.1	16.8	19.1				19.2	18.9	19.7	19.5	24.8	28.9	28.9	29.9	23.2	23.2
Imports	30.5	29.5	31.5				33.0	49.7	54.8	45.0	37.1	34.4	34.4	35.3	32.2	32.2
Net current transfers (negative = inflow)	-3.3	-2.3	-2.2				-2.4	-4.4	-2.6	-2.5	-2.2	-2.1	-2.1	-3.8	-3.1	-3.1
o/w official	-0.2	-0.2	0.6				0.2	0.2	1.7	1.2	5.1	6.9	6.9	-1.7	-1.0	-1.0
Other current account flows (negative = net inflow)	-1.0	-1.4	-3.0				-8.1	-13.4	-21.4	-11.9	-4.8	-1.2	-1.2	-4.5	1.6	1.6
Net FDI (negative = inflow)	-7.2	-3.9	-1.9	0.9	-0.9		-0.5	-0.5	-0.5	-0.7	-1.0	-0.6	-0.6	-0.9	-1.3	-1.3
Endogenous debt dynamics 2/	0.4	0.2	0.2				0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4
Contribution from nominal interest rate	-3.9	-2.9	-0.4				-0.7	-0.7	-0.7	-0.9	-1.3	-0.8	-0.8	-1.2	-1.7	-1.7
Contribution from price and exchange rate changes	-3.7	-1.2	-1.7				...	...	...	...	...	...	...	...	...	...
Residual (3-4) 3/	0.1	-42.0	-3.7				-0.9	-8.8	-8.4	-7.8	-7.7	-4.9	-4.9	-2.8	-4.5	-4.5
o/w exceptional financing	-0.2	-0.2	-0.2				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PV of external debt 4/	...	...	...				9.2	10.9	11.8	12.7	12.4	13.1	13.1	16.6	22.0	22.0
In percent of exports	...	...	...				47.9	57.4	59.6	65.2	49.9	45.5	45.5	55.5	94.5	94.5
PV of PPG external debt	...	...	...				9.2	10.9	11.8	12.7	12.4	13.1	13.1	16.6	22.0	22.0
In percent of exports	...	...	...				47.9	57.4	59.6	65.2	49.9	45.5	45.5	55.5	94.5	94.5
In percent of government revenues	...	...	...				52.8	88.4	95.0	97.9	85.4	87.7	87.7	104.3	151.9	151.9
Debt service-to-exports ratio (in percent)	6.5	227.1	2.8				2.9	2.8	2.7	3.0	2.4	2.0	2.0	2.2	4.3	4.3
PPG debt service-to-exports ratio (in percent)	6.5	227.1	2.8				2.9	2.8	2.7	3.0	2.4	2.0	2.0	2.2	4.3	4.3
PPG debt service-to-revenue ratio (in percent)	10.4	294.9	3.5				3.2	4.3	4.3	4.5	4.1	3.9	3.9	4.1	6.9	6.9
Total gross financing need (Billions of U.S. dollars)	0.3	1.6	0.3				0.1	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.5	1.5
Non-interest current account deficit that stabilizes debt ratio	8.1	47.3	8.6				9.5	22.7	30.2	20.3	13.6	6.7	6.7	5.0	7.1	7.1
<b>Key macroeconomic assumptions</b>																
Real GDP growth (in percent)	8.4	5.8	3.3	4.8	4.6		5.9	4.5	4.5	5.0	7.1	4.3	4.3	4.9	5.0	4.9
GDP deflator in US dollar terms (change in percent)	7.3	2.2	12.8	4.9	8.6		17.2	-5.7	3.1	1.4	9.5	2.7	2.7	2.0	2.0	2.0
Effective interest rate (percent) 5/	0.9	0.4	1.7	1.4	1.4		0.5	1.6	1.3	1.3	1.2	1.2	1.2	1.3	1.2	1.2
Growth of exports of G&S (US dollar terms, in percent)	11.3	6.3	32.4	10.8	13.4		24.7	-3.0	12.3	4.9	49.5	24.7	24.7	18.9	4.8	4.6
Growth of imports of G&S (US dollar terms, in percent)	23.1	4.7	24.1	13.6	13.6		30.0	48.7	18.7	-12.5	-3.2	-0.8	-0.8	13.5	6.1	6.2
Grant element of new public sector borrowing (in percent)	...	...	...	...	...		47.3	49.1	49.4	49.4	50.5	50.6	50.6	50.6	50.6	50.6
Government revenues (excluding grants, in percent of GDP)	...	...	...	...	...		17.5	12.3	12.4	13.0	14.5	15.0	15.0	15.9	14.5	14.5
Aid flows (in Billions of US dollars) 7/	0.3	0.3	0.4				0.3	0.4	0.5	0.5	0.6	0.7	0.7	1.0	1.9	1.9
o/w Grants	0.1	0.2	0.2				0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.6	1.2	1.2
o/w Concessional loans	0.1	0.1	0.1				0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.7	0.7
Grant-equivalent financing (in percent of GDP) 8/	...	...	...				5.3	7.3	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5
Grant-equivalent financing (in percent of external financing) 8/	...	...	...				87.0	82.3	81.3	81.6	82.3	82.2	82.2	82.0	81.5	81.5
<b>Memorandum items:</b>																
Nominal GDP (Billions of US dollars)	3.4	3.6	4.3				5.3	5.2	5.6	6.0	7.0	7.5	7.5	10.5	20.7	20.7
Nominal dollar GDP growth	16.3	8.1	16.5				24.1	-1.5	7.7	6.5	17.3	7.1	7.1	10.2	7.0	7.1
PV of PPG external debt (in Billions of US dollars)	...	...	...				0.5	0.6	0.7	0.8	0.9	1.0	1.0	1.7	4.6	4.6
(PV/(1+r) <sup>t</sup> )/GDP-1 (in percent)	...	...	...				0.8	1.5	1.8	1.7	1.8	1.7	1.7	1.6	1.9	1.8

Source: Staff simulations.

1/ Includes both public and private sector external debt.

2/ Derived as  $(1 - g - r(1+g)/(1+r)^t) \times$  times previous period debt ratio, with  $g$  = real GDP growth rate, and  $r$  = nominal interest rate;  $g =$  real GDP growth rate, and  $r =$  growth rate of GDP deflator in U.S. dollar terms.

3/ Includes exceptional financing (i.e., changes in arrears; and debt relief); changes in gross foreign assets; and valuation adjustments. For projections also includes contribution from price and exchange rate changes.

4/ Assumes that PV of private sector debt is equivalent to its face value.

5/ Current-year interest payments divided by previous period debt stock.

6/ Historical averages and standard deviations are generally derived over the past 10 years, subject to data availability.

7/ Defined as grants, concessional loans, and debt relief.

8/ Grant-equivalent financing includes grants provided directly to the government and through new borrowing (difference between the face value and the PV of new debt).



Table 2a. Niger: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-2028  
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
<b>PV of debt-to GDP ratio</b>								
<b>Baseline</b>	9	11	12	13	12	13	16	22
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2008-2028 1/	9	7	5	4	3	3	7	14
A2. New public sector loans on less favorable terms in 2008-2028 2	9	11	12	13	13	14	18	25
A3. New public sector loans with 35% grant element in 2008-2028	9	11	13	14	14	15	20	28
A4. Exports value growth assuming an oil price of US\$ 50 in 2012-2028	9	11	13	14	13	14	17	22
A5. No implementation of new oil and uranium projects	9	11	12	13	12	13	17	22
A6. Average real GDP growth of 3.5 percent per year in 2009-28	9	11	12	13	13	14	19	29
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	9	11	13	14	13	14	18	24
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	9	11	13	14	13	14	17	22
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	9	11	12	13	13	14	17	23
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	9	20	32	33	30	30	32	28
B5. Combination of B1-B4 using one-half standard deviation shocks	9	18	31	32	29	29	31	28
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	9	16	17	18	18	19	24	32
<b>PV of debt-to-exports ratio</b>								
<b>Baseline</b>	48	57	60	65	50	46	55	95
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2008-2028 1/	48	37	27	20	13	12	22	61
A2. New public sector loans on less favorable terms in 2008-2028 2	48	58	62	69	53	49	62	108
A3. New public sector loans with 35% grant element in 2008-2028	48	60	64	72	56	53	68	121
A4. Exports value growth assuming an oil price of US\$ 50 in 2012-2028	48	57	66	72	60	52	61	100
A5. No implementation of new oil and uranium projects	48	57	60	65	69	73	90	114
A6. Average Real GDP growth of 3.5 percent per year in 2009-28	48	57	60	65	50	46	55	95
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	48	57	60	65	50	45	55	95
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	48	57	76	82	62	56	67	111
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	48	57	60	65	50	45	55	95
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	48	105	166	171	123	107	107	123
B5. Combination of B1-B4 using one-half standard deviation shocks	48	92	158	163	118	102	103	121
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	48	57	60	65	50	45	55	95
<b>Debt service-to-exports ratio</b>								
<b>Baseline</b>	2.9	2.8	2.7	3.0	2.4	2.0	2.2	4.3
<b>A. Alternative Scenarios</b>								
A1. Key variables at their historical averages in 2008-2028 1/	2.9	2.5	2.1	2.0	1.6	1.2	1.3	2.0
A2. New public sector loans on less favorable terms in 2008-2028 2	2.9	2.8	2.9	3.5	3.0	2.7	3.4	6.0
A3. New public sector loans with 35% grant element in 2008-2028	2.9	2.8	2.9	3.6	3.1	2.9	3.7	6.6
A4. Exports value growth assuming an oil price of US\$ 50 in 2012-2028	2.9	2.8	2.7	3.1	2.7	2.2	2.3	4.7
A5. No implementation of new oil and uranium projects	2.9	2.8	2.7	3.0	3.3	3.3	3.5	5.2
A6. Average Real GDP growth of 3.5 percent per year in 2009-28	2.9	2.8	2.7	3.0	2.4	2.0	2.2	4.3
<b>B. Bound Tests</b>								
B1. Real GDP growth at historical average minus one standard deviation in 2009-2010	2.9	2.8	2.7	3.0	2.4	2.0	2.2	4.3
B2. Export value growth at historical average minus one standard deviation in 2009-2010 3/	2.9	2.7	3.1	3.6	2.8	2.4	2.6	5.1
B3. US dollar GDP deflator at historical average minus one standard deviation in 2009-2010	2.9	2.8	2.7	3.0	2.4	2.0	2.2	4.3
B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 4/	2.9	2.8	3.7	5.4	4.0	3.3	3.1	6.8
B5. Combination of B1-B4 using one-half standard deviation shocks	2.9	2.6	3.6	5.2	3.9	3.2	3.1	6.7
B6. One-time 30 percent nominal depreciation relative to the baseline in 2009 5/	2.9	2.8	2.7	3.0	2.4	2.0	2.2	4.3
<i>Memorandum item:</i>								
Grant element assumed on residual financing (i.e., financing required above baseline) 6/	48	48	48	48	48	48	48	48

Source: Staff projections and simulations.

1/ Variables include real GDP growth, growth of GDP deflator (in U.S. dollar terms), non-interest current account in percent of GDP, and non-debt creating flows.

2/ Assumes that the interest rate on new borrowing is by 2 percentage points higher than in the baseline, while grace and maturity periods are the same as in the baseline.

3/ Exports values are assumed to remain permanently at the lower level, but the current account as a share of GDP is assumed to return to its baseline level after the shock (implicitly assuming an offsetting adjustment in import levels).

4/ Includes official and private transfers and FDI.

5/ Depreciation is defined as percentage decline in dollar/local currency rate, such that it never exceeds 100 percent.

6/ Applies to all stress scenarios except for A2 (less favorable financing) in which the terms on all new financing are as specified in footnote 2.

Table 2b.Niger: Sensitivity Analysis for Key Indicators of Public Debt 2008-2028

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
<b>PV of Debt-to-GDP Ratio</b>								
<b>Baseline</b>	18	20	21	21	18	17	17	23
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	18	18	18	18	16	16	19	29
A2. Primary balance is unchanged from 2008	18	16	15	15	12	11	9	13
A3. Permanently lower GDP growth 1/	18	20	21	22	19	19	23	43
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	18	21	23	24	21	21	24	35
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	18	18	19	19	16	15	16	22
B3. Combination of B1-B2 using one half standard deviation shocks	18	18	19	20	17	16	18	27
B4. One-time 30 percent real depreciation in 2009	18	24	23	23	19	17	15	18
B5. 10 percent of GDP increase in other debt-creating flows in 2009	18	26	26	26	22	21	21	25
<b>PV of Debt-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	83	111	114	111	86	81	78	112
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	83	98	97	95	79	76	85	142
A2. Primary balance is unchanged from 2008	83	91	85	78	58	52	42	66
A3. Permanently lower GDP growth 1/	83	112	117	115	92	88	103	200
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	83	116	126	125	102	98	109	169
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	83	102	105	103	80	74	73	109
B3. Combination of B1-B2 using one half standard deviation shocks	83	101	103	103	82	78	83	132
B4. One-time 30 percent real depreciation in 2009	83	131	129	121	92	83	69	90
B5. 10 percent of GDP increase in other debt-creating flows in 2009	83	144	142	137	108	101	95	123
<b>Debt Service-to-Revenue Ratio 2/</b>								
<b>Baseline</b>	4	4	4	4	4	3	3	5
<b>A. Alternative scenarios</b>								
A1. Real GDP growth and primary balance are at historical averages	4	4	3	4	3	3	3	6
A2. Primary balance is unchanged from 2008	4	4	3	3	3	3	3	3
A3. Permanently lower GDP growth 1/	4	4	4	4	4	4	4	8
<b>B. Bound tests</b>								
B1. Real GDP growth is at historical average minus one standard deviations in 2009-2010	4	4	4	4	4	4	4	7
B2. Primary balance is at historical average minus one standard deviations in 2009-2010	4	4	4	4	3	3	3	5
B3. Combination of B1-B2 using one half standard deviation shocks	4	4	4	4	4	3	3	6
B4. One-time 30 percent real depreciation in 2009	4	5	5	5	5	5	5	8
B5. 10 percent of GDP increase in other debt-creating flows in 2009	4	4	5	5	4	4	4	6

Sources: Country authorities; and Fund staff estimates and projections.

1/ Assumes that real GDP growth is at baseline minus one standard deviation divided by the length of the projection period.

2/ Revenues are defined inclusive of grants.

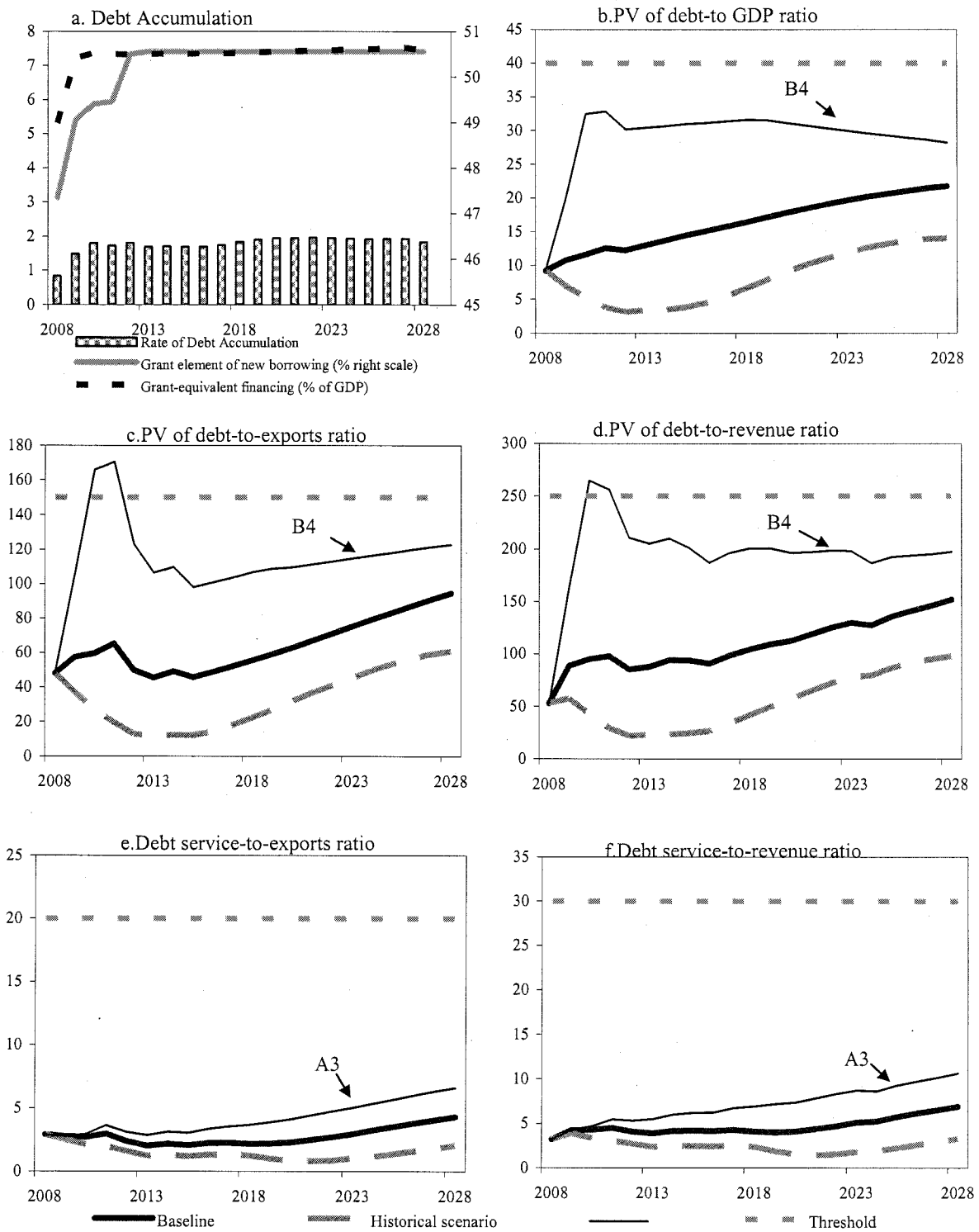
Table 3.Niger: Sensitivity Analysis for Key Indicators of Public and Publicly Guaranteed External Debt, 2008-2028  
(Not Including New Oil and Uranium Projects)  
(In percent)

	Projections							
	2008	2009	2010	2011	2012	2013	2018	2028
<b>PV of debt-to GDP ratio</b>								
Alternative Baseline	9	11	12	13	12	13	17	22
Alternative B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 1/	9	14	16	17	16	17	20	23
Alternative B5. Combination of B1-B4 using one-half standard deviation shocks	9	12	15	15	15	15	19	23
<b>PV of debt-to-exports ratio</b>								
Alternative Baseline	48	57	60	65	69	73	90	114
Alternative B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 1/	48	72	82	88	90	94	108	121
Alternative B5. Combination of B1-B4 using one-half standard deviation shocks	48	61	74	80	83	87	102	119
<b>PV of debt-to-revenue ratio</b>								
Alternative Baseline	53	88	95	98	85	88	104	152
Alternative B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 1/	53	111	131	132	112	113	125	162
Alternative B5. Combination of B1-B4 using one-half standard deviation shocks	53	96	118	119	102	103	117	158
<b>Debt service-to-exports ratio</b>								
Alternative Baseline	2.9	2.8	2.7	3.0	3.3	3.3	3.5	5.2
Alternative B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 1/	2.9	2.8	3.0	3.5	3.8	3.7	3.9	5.8
Alternative B5. Combination of B1-B4 using one-half standard deviation shocks	2.9	2.6	2.9	3.3	3.6	3.6	3.8	5.6
<b>Debt service-to-revenue ratio</b>								
Alternative Baseline	3.2	4.3	4.3	4.5	4.1	3.9	4.1	6.9
Alternative B4. Net non-debt creating flows at historical average minus one standard deviation in 2009-2010 1/	3.2	4.3	4.8	5.2	4.7	4.4	4.5	7.8
Alternative B5. Combination of B1-B4 using one-half standard deviation shocks	3.2	4.1	4.6	5.0	4.4	4.2	4.3	7.5

Source: Staff projections and simulations.

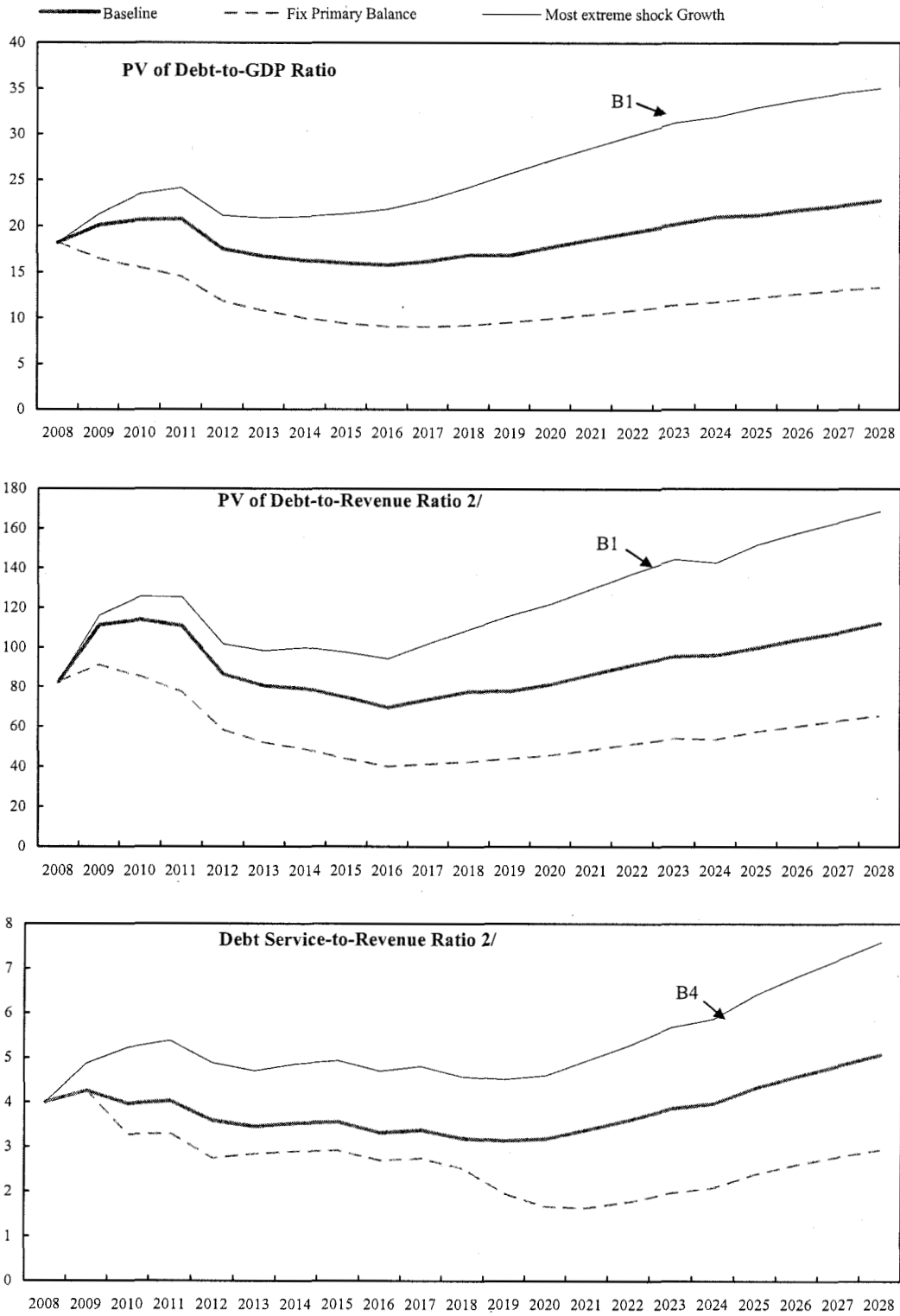
1/ Includes official and private transfers and FDI.

Figure 1. Niger: Indicators of Public and Publicly Guaranteed External Debt under Alternatives Scenarios, 2008-2028



Source: Staff projections and simulations.

Figure 2.Niger: Indicators of Public Debt Under Alternative Scenarios, 2008-2028 1/



Sources: Country authorities; and Fund staff estimates and projections.

1/ The most extreme stress test is the test that yields the highest ratio in 2018.

2/ Revenues are defined inclusive of grants.